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U.S. Patent and Trademark Office U.S. DEPARTMENT OF COMMERCE
PTO/SB/21 (08-00)

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

7

09/867,845

Application Number	09/867,845
Filing Date	May 29, 2001
First Named Inventor	Chaitan KHOSLA
Group Art Unit	1631
Examiner Name	S. Zhou
Attorney Docket Number	300622005500

RECEIVED
TECH CENTER 1602/2900
JUL 23 2003

ENCLOSURES (check all that apply)

- Fee Transmittal Form (1 page, plus duplicate)
- Fee Attached
- Amendment/Reply
- After Final
- Affidavits/declaration(s)
- Extension of Time Request (1 page, plus duplicate)
- Express Abandonment Request
- Information Disclosure Statement
- Certified Copy of Priority Document(s)
- Response to Missing Parts/ Incomplete Application
- Response to Missing Parts under 37 CFR 1.52 or 1.53

- Assignment Papers (for an Application)
- Drawing(s)
- Licensing-related Papers
- Petition
- Petition to Convert to a Provisional Application
- Power of Attorney, Revocation Change of Correspondence Address
- Terminal Disclaimer
- Request for Refund
- CD, Number of CD(s) _____

- After Allowance Communication to Group
- Appeal Communication to Board of Appeals and Interferences
- Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
- Proprietary Information
- Status Letter
- Other Enclosure(s) (please identify below)

Response to Notice to Comply, etc.
and Summary of Examiner's Interview (2 pages)
Return Receipt Postcard

Remarks



25225
PATENT TRADEMARK OFFICE

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual Name

MORRISON & FOERSTER LLP
Brenda J. Wallach - 45,193

Signature

Brenda J. Wallach

Date

July 14, 2003

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: July 14, 2003 Signature: Diane Blevins (Diane Blevins)

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FEETRANSMITTAL for FY 2003

Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 985.00)

Complete if Known

Application Number	09/867,845
Filing Date	May 29, 2001
First Named Inventor	Chaitan KHOSLA
Examiner Name	S. Zhou
Group Art Unit	1631
Attorney Docket No.	300622005500

METHOD OF PAYMENT (check all that apply)

Check Credit Card Money Order Other None

Deposit Account

Deposit Account Number 03-1952

Deposit Account Name Morrison & Foerster LLP

The Commissioner is hereby authorized to: (check all that apply)

Charge fee(s) indicated below Credit any overpayments
 Charge any additional fee(s) during the pendency of this application
 Charge fee(s) indicated below, except for the filing fee

to the above-identified deposit account.

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity	Small Entity	Fee Description	Fee Paid
Fee Code	Fee Code (\$)	Fee Code (\$)	Fee Description
1051	130	2051	65 Surcharge – late filing fee or oath
1052	50	2052	25 Surcharge – late provisional filing fee or cover sheet.
1053	130	1053	130 Non-English specification
1812	2,520	1812	2,520 For filing a request for ex parte reexamination
1804	920*	1804	920* Requesting publication of SIR prior to Examiner action
1805	1,840*	1805	1,840* Requesting publication of SIR after Examiner action
1251	110	2251	55 Extension for reply within first month
1252	410	2252	205 Extension for reply within second month
1253	930	2253	465 Extension for reply within third month
1254	1,450	2254	725 Extension for reply within fourth month
1255	1,970	2255	985 Extension for reply within fifth month
1401	320	2401	160 Notice of Appeal
1402	320	2402	160 Filing a brief in support of an appeal
1403	280	2403	140 Request for oral hearing
1451	1,510	1451	1,510 Petition to institute a public use proceeding
1452	110	2452	55 Petition to revive – unavoidable
1453	1,300	2453	650 Petition to revive - unintentional
1501	1,300	2501	650 Utility issue fee (or reissue)
1502	470	2502	235 Design issue fee
1503	630	2503	315 Plant issue fee
1460	130	1460	130 Petitions to the Commissioner
1807	50	1807	50 Processing fee under 37 CFR 1.17(q)
1806	180	1806	180 Submission of Information Disclosure Stmt
8021	40	8021	40 Recording each patent assignment per property (times number of properties)
1809	750	2809	375 Filing a submission after final rejection (37 CFR 1.129(a))
1810	750	2810	375 For each additional invention to be examined (37CFR 1.129(b))
1801	750	2801	375 Request for Continued Examination (RCE)
1802	900	1802	900 Request for expedited examination of a design application
Other fee (specify)			
*Reduced by Basic Filing Fee Paid		SUBTOTAL (3) (\$ 985.00)	

**or number previously paid, if greater. For Reissues, see above

SUBMITTED BY			Complete (if applicable)	
Name (Print/Type)	Brenda J. Wallach	Registration No. (Attorney/Agent)	45,193	Telephone (858) 720-7961
Signature	Brenda J. Wallach		Date	July 14, 2003

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Dated: July 14, 2003 Signature: Diane Blevins

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addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA
22313-1450, on the date shown below.

Dated: July 17, 2003

Signature: 
(Diane Blevins)

Docket No.: 10622005500
(PATENT)

O I P E
JUL 18 2003
PATENT & TRADEMARK OFFICE
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Chaitan KHOSLA, et al.

Application No.: 09/867,845

Filed: May 29, 2001

For: DESIGN OF POLYKETIDE SYNTHASE
GENES

Group Art Unit: 1631

Examiner: S. Zhou

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JUL 23 2003
TECH CENTER 1600/2900

RESPONSE TO NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT
APPLICATIONS CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID
SEQUENCE DISCLOSURES AND SUMMARY OF EXAMINER'S
INTERVIEW UNDER 37 CFR §1.133

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice to Comply with Requirements for Patent Applications Containing Nucleotide Sequence and/or Amino Acid Sequence Disclosures dated January 13, 2003 (Paper No. 18), Applicant conducted an interview with Examiner Zhou on April 23, 2003, in which Applicant argued that the Notice to Comply was sent in error because there are no sequences encompassed by the definitions for nucleotides and/or amino acid sequences as set forth in 37 C.F.R. §1.821(a)(1) and (a)(2) in the subject specification. Applicant also explained how the sequence of letters in Table 1 (pages 27-34 of the specification) and Figure 1 are not sequences of amino acids, but rather CHUCKLES as defined in the specification.

sd-155159

Examiner Zhou agreed with Applicant's arguments and stated that the notice to comply was sent in error. Therefore, Applicant views this document as a complete response to the Notice to Comply.

In addition, even though the Interview Summary faxed to Applicant on July 7, 2003, indicated that it is not necessary for applicant to provide a separate record of the substance of the interview, pursuant to 37 CFR §1.133, Applicant is herein summarizing the contents of the interview with the Examiner.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicant(s) petition(s) for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. **(300622005500)**.

Dated: July 14, 2003

Respectfully submitted,

By Brenda J. Wallach
Brenda J. Wallach, Ph.D.
Patent Agent
Registration No.: 45,193
MORRISON & FOERSTER LLP
3811 Valley Centre, Suite 500
San Diego, California 92130
(858) 720-7961

Interview Summary	Application No. 09/867,845	Applicant(s) KHOSLA ET AL.
	Examiner Shubo "Joe" Zhou	Art Unit 1631

All participants (applicant, applicant's representative, PTO personnel):

(1) Shubo "Joe" Zhou. (3) _____.

(2) Brenda Wallach. (4) _____.

Date of Interview: 23 April 2003.

Type: a) Telephonic b) Video Conference
c) Personal [copy given to: 1) applicant 2) applicant's representative]

Exhibit shown or demonstration conducted: d) Yes e) No.

If Yes, brief description: _____.

Claim(s) discussed: _____.

Identification of prior art discussed: _____.

Agreement with respect to the claims f) was reached. g) was not reached. h) N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicants argue that the sequence rules non-compliance letter the Office sent on 1/13/03 is in error because there is no sequences encompassed by the definitions for nucleotides and/or amino acid sequences set forth in 37 C.F.R. 1.821(a)(1) and (a)(2). The sequence of letters in Table 1 (27-34) and Figure 1 are not sequences of amino acids, but rather chuckles as defined in the specification .

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

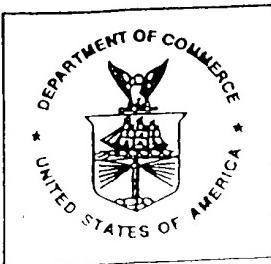
i) It is not necessary for applicant to provide a separate record of the substance of the interview(if box is checked).

Unless the paragraph above has been checked, THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an attachment to a signed Office action.



Examiner's signature, if required



FAX

TELECOPY/FACSIMILE TRANSMISSION

DATE: 1/7/03

PAGES: 2

(No. of pages including this cover sheet)

TO: Brenda Wallach

(ATTORNEY, AGENT, FIRM OR AGENCY)

09/867845

(ATTORNEY'S DOCKET NUMBER OR APPLICATION NUMBER)

858-720-5125

(FAX/TELECOPIER NUMBER)

FROM: S. "Joe" Zhou, EXAMINER,

ART UNIT 1631

PHONE NUMBER: (703) 605-1158

Remarks:

Per the phone conversation w/ your
ass't, here is a copy of
the Interview Summary for the
interview conducted 4/23/03. An
office action will follow & a copy
of the Int. Summary will be attached thereto.

WHAT IS CLAIMED IS:

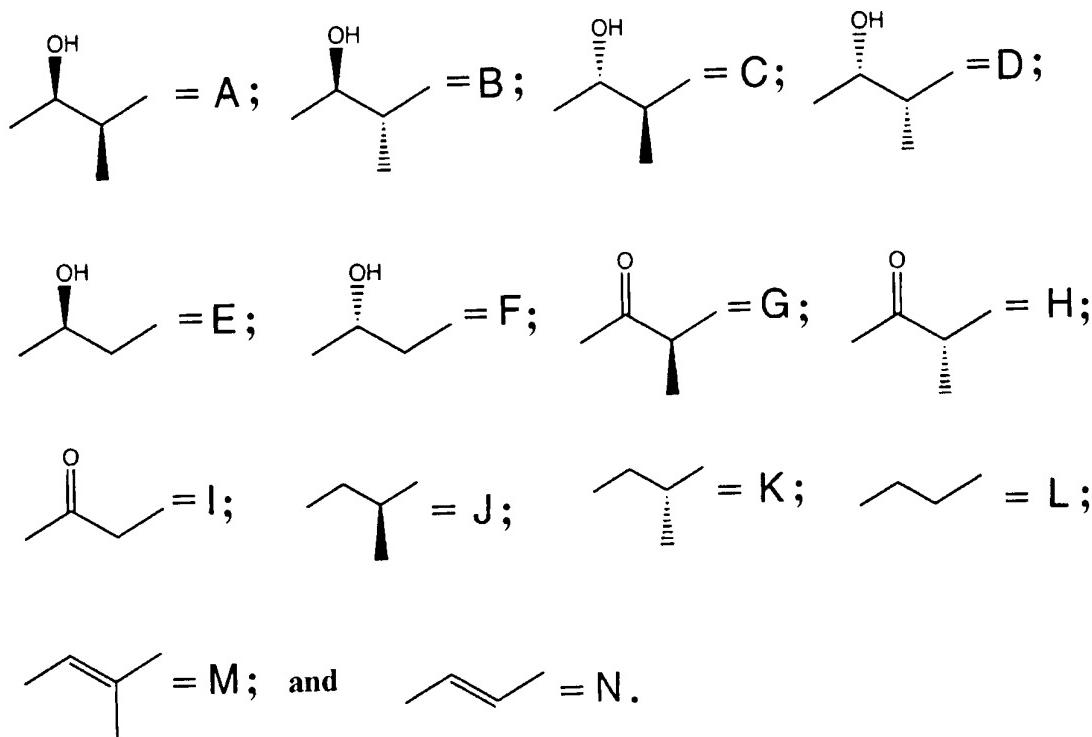
1. A method for representing the structure of a polyketide produced by a modular polyketide synthase, said method comprising the steps of:

- 5 (a) defining a set of monomer units of which said polyketide is composed,
- (b) assigning an alphanumeric symbol or symbols to each different monomer unit in said set,
- (c) identifying one or more monomers in said set that is present in said 10 polyketide, and
- (d) composing a string of said symbols ordered in a manner reflecting the order in which said monomers occurs in said polyketide, wherein said string of symbols represents the structure of said polyketide.

15 2. The method of claim 1, wherein said monomer set comprises two-carbon unit monomers, wherein a first carbon of said unit is substituted with hydrogen or methyl, and a second carbon of said unit is substituted with oxygen, hydroxy, or hydrogen, and said two carbon unit comprises either a single or a double bond between said first and second carbons.

20 3. The method of claim 2, wherein said monomer set additionally comprises one or more members selected from the group consisting of two carbon unit monomers in which said first carbon is substituted with hydroxy, methoxy, or ethyl; a moiety corresponding to an amino acid or amino acid derivative incorporated into a PKS by a non-ribosomal peptide synthase; a moiety corresponding to a structure incorporated into a polyketide by an AMP ligase or a CoA ligase; and a moiety corresponding to a structure corresponding 25 to a structure in a polyketide after modification by a polyketide modification enzyme.

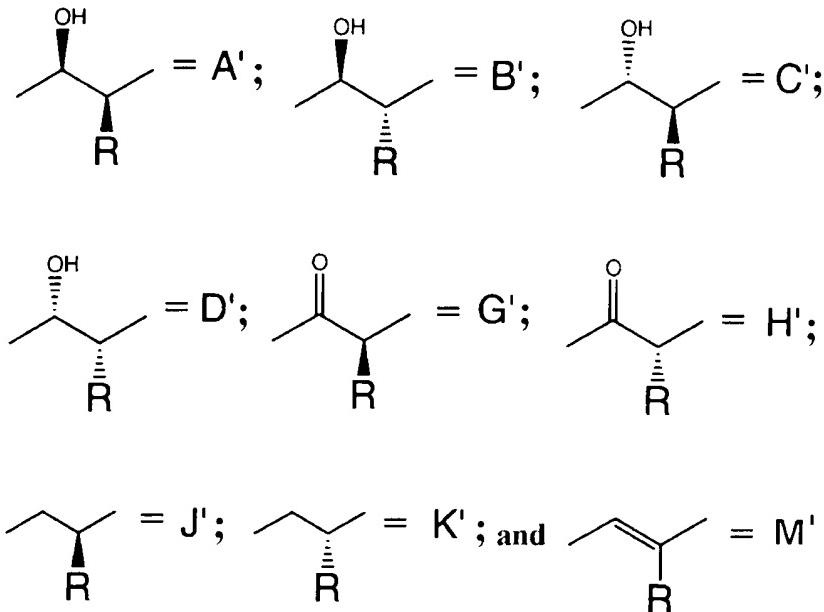
4. The method of claim 2 wherein the set of monomer unit and corresponding symbol comprises:



5

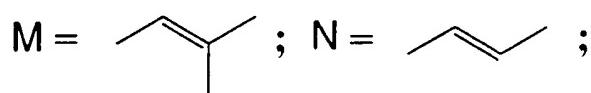
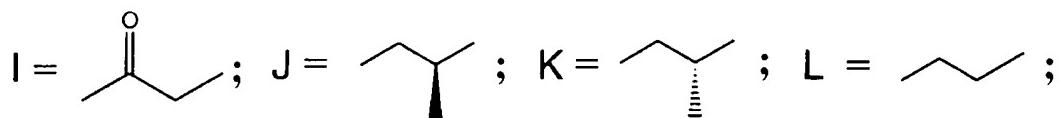
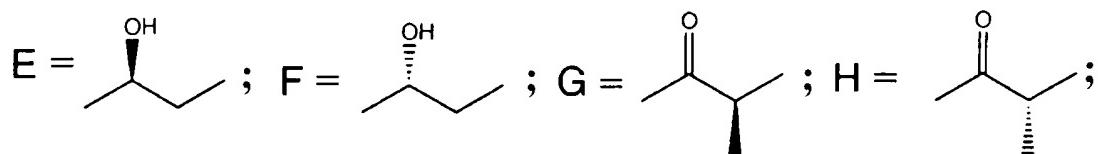
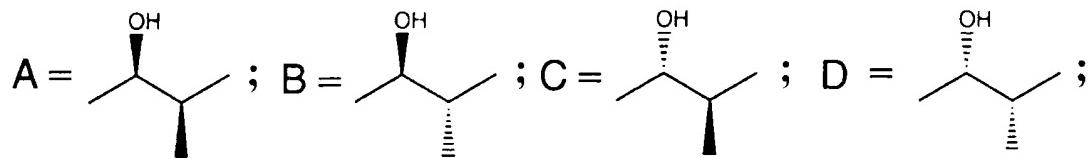
5. The method of claim 4 wherein the set of monomer unit further comprises a miscellaneous monomer that is assigned the symbol Q.

6. The method of claim 4 wherein the set of monomer unit and corresponding symbol further comprises



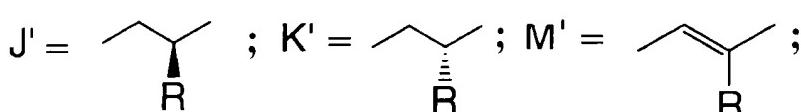
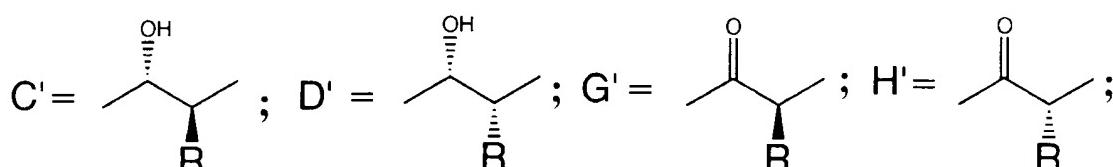
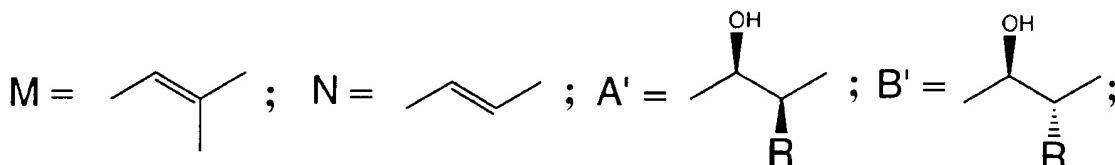
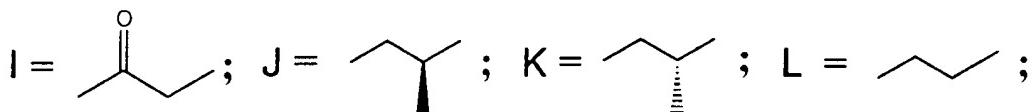
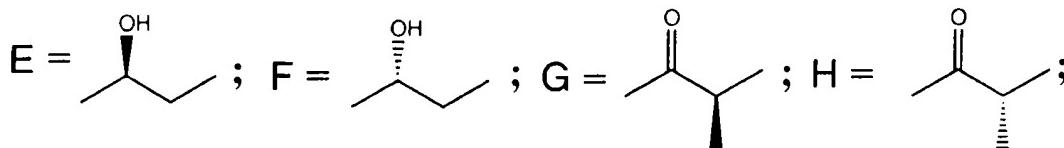
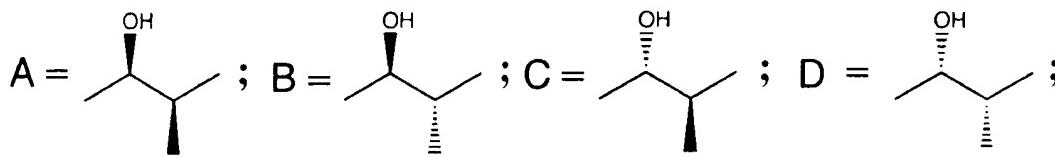
- 5 7. A database of polyketides, in which each said member is represented by a string of alpha-numeric symbols, wherein said symbols represent structural subunits of said polyketide, and said string represents the order in which such subunits occur in said polyketide.
- 10 8. The database of claim 7 that includes at least 100 different polyketides.
9. The database of claim 7 wherein each said member is represented by a CHUCKLES string.
- 15 10. The database of claim 7 wherein each said member is represented by an annotated CHUCKLES string.

11. The database of claim 7 wherein the symbol and its corresponding structural subunit are selected from the group consisting of



and Q for a miscellaneous monomer.

12. The database of claim 7 wherein the symbol and its corresponding structural subunit are selected from the group consisting of



and Q for a miscellaneous monomer.

5

13. A database of polyketides, in which each said member is represented by a linearized representation of said polyketide.

✓ 100%

14. A method of designing a PKS gene capable of producing a desired polyketide, which method comprises:

- (a) defining a string of alphanumeric symbols representing the structure of said polyketide,
- 5 (b) comparing said string to a database of strings of alphanumeric symbols representing polyketides produced by PKS genes,
- (c) identifying common elements in said string representing the structure of said polyketide with elements in said strings in said database, and
- (d) generating one or more new strings from elements identified in step (b) that match said string representing the structure of said polyketide, wherein said new string defines a PKS gene capable of producing said polyketide.

10
15 15. The method of claim 14, wherein all possible PKS genes encoding a desired polyketide from said database are generated and displayed.

16. The method of claim 14, wherein said new strings generated in step (d) are rated and displayed in an order based on one or more parameters.

20 17. The method of claim 16, wherein said parameters are selected from the group consisting of number of non-native module interfaces and number of non-native protein interfaces.